

Application No.: 10/826,637
Attorney Docket No.: 25319A

IN THE CLAIMS

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1. (Currently amended) A gypsum facing material comprising:
a randomly oriented open mesh filament network substantially impregnated with a first binder resin; and
an aqueous secondary binder resin applied to said randomly oriented open mesh filament network, said secondary binder resin having a viscosity sufficient to partially penetrate said open mesh filament network, wherein said secondary binder resin includes at least one filler, at least one reinforcing agent selected from the group consisting of acicular man-made fibers and fibrous reinforcement agents, and at least about 6% by weight of a fairly low glass transition organic binder,
wherein said filler is present in said secondary binder resin in an amount not more than about 65% by weight.
2. (Canceled)
3. (Canceled)
4. (Previously Presented) The gypsum facing material of claim 1, wherein said secondary binder resin further comprises a small level of a crosslinking agent.
5. (Previously Presented) The gypsum facing material of claim 1, wherein said secondary binder resin further comprises a small level of a thermosetting resin.
6. (Previously Presented) The gypsum facing material of claim 1, wherein said secondary binder resin further comprises a small level of a crosslinking agent and a small level of a thermosetting resin.
7. (Canceled)
8. (Previously Presented) The gypsum facing material of claim 1, wherein said fairly low glass transition binder comprises between about 7 and 10 percent of the total weight of said secondary binder resin.

Application No.: 10/826,637
Attorney Docket No.: 25319A

9. (Canceled)
10. (Previously Presented) The gypsum facing material of claim 1, wherein said fairly low glass transition organic binder comprises an acrylic based resin.
11. (Previously Presented) The gypsum facing material of claim 1, wherein said fairly low glass transition organic binder comprises a styrene-butadiene-rubber based resin.
12. (Previously Presented) The gypsum facing material of claim 1, wherein said at least one filler is selected from the group consisting of calcium carbonate, aluminum hydroxide, zinc oxide, mixed oxides, iron oxides, chromates, glass beads, silicates, clay, sand and combinations thereof.
13. (Canceled)
14. (Canceled)
15. (Currently Amended) The gypsum facing material of claim 1, wherein said at least one reinforcing agent is selected from the group consisting of wollastonite, wood fibers, cellulose, lignin, polypropylene fibers, polyester fibers, glass fibers, gypsum, Chalcedony, acicular man made fibers, metallic wools, steel wool, mica and combinations thereof.
16. (Previously Presented) The gypsum facing material of claim 1, further comprising a low basis secondary veil layered onto said randomly oriented open mesh filament network.
17. (Original) The gypsum facing material of claim 16, wherein said low basis secondary veil comprises a plurality of glass fibers, polymeric fibers, or a mixture thereof, said fibers having a length sufficient to bridge each of a plurality of pores defined within said randomly oriented open mesh filament network.

Application No.: 10/826,637
Attorney Docket No.: 25319A

18. (Currently Amended) The gypsum facing material of claim 17, wherein said secondary veil comprises fibers ~~comprise~~ glass fibers, and said glass fibers are covered by a coating.

19. (Previously Presented) The gypsum facing material of claim 17, wherein said secondary veil comprises polymeric fibers, wherein said polymeric fibers are selected from the group consisting of polyester fibers, flame retardant polyester fibers, flame retardant polyolefin fibers and polyolefin fibers.

20. (Previously Presented) The gypsum facing material of claim 1, wherein said first binder resin makes a stable emulsion in water and is selected from the group consisting of a melamine-based resin, a urea-formaldehyde-based resin, an acrylic-based resin and a modifying resin.

21. (Original) The gypsum facing material of claim 1, wherein said randomly oriented open mesh filament network comprises a plurality of wet use chop strands.

22. (Previously Presented) The gypsum facing material of claim 21, wherein at least one of said plurality of wet use chop strands includes a low solids sizing composition.

23. (Currently Amended) The gypsum facing material of claim 1, further comprising:
a plurality of high aspect ratio particles applied onto said open mesh filament network
~~introduced to said first binder resin prior to the introduction of said secondary binder resin.~~

24. (Original) The gypsum facing material of claim 23, wherein said plurality of high aspect ratio particles is selected from the group consisting of wollastonite, wood-based fibers, polymeric fibers, cellulose, lignin, polypropylene fibers, polyester fibers, glass fibers, gypsum, Chalcedony, acicular man-made fibers, metallic wools, steel wool, mica and combinations thereof.

Application No.: 10/826,637
Attorney Docket No.: 25319A

25. (Canceled)

26. (Canceled)

27. (Previously Presented) The gypsum facer material of claim 1, wherein said secondary binder resin further comprises an inorganic binder.

28. (Original) The gypsum facer material of claim 27, wherein said inorganic binder comprises a compound selected from the group consisting of calcium oxide, calcium silicate, calcium sulfate, magnesium oxychloride, magnesium oxysulfate, aluminum hydroxide and portland cement.

29. - 50. (Canceled)

51. (Currently Amended) A gypsum facing material comprising:

a randomly oriented open mesh filament network substantially impregnated with a first binder resin;

a first reinforcing agent applied to said open mesh filament network, said first reinforcing agent including high aspect ratio particles to improve the stiffness and/or the openness of the mesh; and

a second binder resin to hold said high aspect ratio particles onto said open mesh filament network; and

an aqueous ~~secondary~~ coating applied to said randomly oriented open mesh filament network at a viscosity sufficient to prevent full penetration of said aqueous ~~secondary~~ coating within said impregnated randomly oriented open mesh filament network, wherein said aqueous ~~secondary~~ coating includes at least one filler, at least one second reinforcing agent selected from the group consisting of acicular man-made fibers and fibrous reinforcement agents, and a fairly low glass transition organic binder.

52. (Canceled)

Application No.: 10/826,637
Attorney Docket No.: 25319A

53. (Currently Amended) The gypsum facing material of claim ~~51~~52, wherein said high aspect ratio particles are selected from the group consisting of mica, coated glass fibers, wood-based fibers and polymeric fibers.

54. (Currently Amended) The gypsum facing material of claim ~~51~~52, wherein said high aspect ratio particles do not substantially enter into pores defined by said open mesh filament network.

55. (Currently Amended) The gypsum facing material of claim 51, wherein said at least one second reinforcing agent is selected from the group consisting of wollastonite, wood-based fibers, polymeric fibers, cellulose, lignin, polypropylene fibers, polyester fibers, glass fibers, gypsum, quartz, acicular man-made fibers, metallic wools, steel wool, mica and combinations thereof.

56. (Canceled)

57. (Currently Amended) The gypsum facing material of claim 51, wherein said first reinforcing agent is applied to said first binder resin prior to said aqueous ~~secondary~~ coating.

58. (Currently Amended) The gypsum facing material of claim 51, wherein said fairly low glass transition organic binder is present in said aqueous ~~secondary~~ coating in an amount of at least about 6% by weight.

59. (Canceled)

Application No.: 10/826,637
Attorney Docket No.: 25319A

60. (Previously Presented) A gypsum facing material comprising:
a randomly oriented open mesh filament network substantially impregnated with a first binder resin; and
an aqueous secondary binder resin applied to said randomly oriented open mesh filament network, said secondary binder resin having a viscosity sufficient to partially penetrate said open mesh filament network, wherein said secondary binder resin includes a fairly low glass transition organic binder, at least one filler, and at least one reinforcing agent selected from the group consisting of acicular man made fibers, fibrous reinforcement agents and plate-like reinforcement agents, said at least one filler being present in said secondary binder resin in an amount of not more than about 65% by weight.
61. (Previously Presented) The gypsum facing material of claim 60, wherein said fairly low glass transition organic binder is present in said secondary binder resin in an amount of at least about 6% by weight.
62. (Previously Presented) The gypsum facing material of claim 60, wherein said fairly low glass transition organic binder comprises an acrylic based resin.
63. (Previously Presented) The gypsum facing material of claim 60, wherein said fairly low glass transition organic binder comprises a styrene-butadiene-rubber based resin.
64. (Previously Presented) The gypsum facing material of claim 60, wherein said at least one filler is selected from the group consisting of calcium carbonate, aluminum hydroxide, zinc oxide, mixed oxides, iron oxides, chromates, glass beads, silicates, clay, sand and combinations thereof.
65. (Previously Presented) The gypsum facing material of claim 60, wherein said at least one reinforcing agent is selected from the group consisting of wollastonite, wood fibers, cellulose, lignin, polypropylene fibers, polyester fibers, glass fibers, gypsum, quartz, metallic wools, steel wool, mica and combinations thereof.

Application No.: 10/826,637
Attorney Docket No.: 25319A

66. (Previously Presented) The gypsum facing material of claim 60, further comprising a low basis secondary veil layered onto said randomly oriented open mesh filament network.

67. (Previously Presented) The gypsum facing material of claim 66, wherein said low basis secondary veil comprises a plurality of glass fibers, polymeric fibers, or a mixture thereof, said fibers having a length sufficient to bridge each of a plurality of pores defined within said randomly oriented open mesh filament network.

68. (Currently Amended) The gypsum facing material of claim 60, further comprising:
a plurality of high aspect ratio particles applied onto said open mesh filament network
~~introduced to said first binder resin prior to the introduction of said secondary binder resin.~~

69. (Previously Presented) The gypsum facing material of claim 68, wherein said plurality of high aspect ratio particles is selected from the group consisting of wollastonite, wood-based fibers, polymeric fibers, cellulose, lignin, polypropylene fibers, polyester fibers, glass fibers, gypsum, quartz, metallic wools, steel wool, mica and combinations thereof.

70. (Previously Presented) The gypsum facing material of claim 68, wherein a low viscosity binder is introduced onto said high aspect ratio particles to hold said high aspect ratio particles on said open mesh filament network.

71. (Previously Presented) The gypsum facing material of claim 70, wherein said secondary binder resin further comprises an inorganic binder.

72. (Previously Presented) The gypsum facing material of claim 71, wherein said inorganic binder comprises a compound selected from the group consisting of calcium oxide, calcium silicate, calcium sulfate, magnesium oxychloride, magnesium oxysulfate, aluminum hydroxide and Portland cement.

73. (Previously Presented) The gypsum facing material of claim 68, wherein said high aspect ratio particles do not substantially enter into pores defined by said open mesh filament network.